



Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously presented) A method of encrypting an optical signal to be transmitted via an optical fiber communication link by causing controlled chromatic dispersion of said signal using steps of

ensuring a variable dispersion compensation module inserted in the optical fiber communication link, performing controlled change of dispersion within the optical fiber communication link using said variable dispersion compensation module.

2. (Previously presented) The method according to Claim 1, for encrypting an optical signal to be transmitted via an optical fiber communication link between a transmitting site and a receiving site, comprising:

obtaining an original optical signal,
at the transmitting site, encrypting the original optical signal by causing said controlled chromatic dispersion thereof,

transmitting the encrypted optical signal,
at the receiving site, providing a suitably controlled compensation of the dispersion caused at the transmitting site using steps of ensuring an additional variable dispersion compensation module inserted in the optical fiber communication link close to the receiving site,

performing controlled change of dispersion within the optical fiber communication link using said additional variable dispersion compensation module,

thereby decrypting the encrypted optical signal to restore the original optical signal.

3. (Previously presented) The method according to Claim 1, comprising causing the controlled chromatic dispersion of the optical signal by controlling said variable dispersion compensation module in a predetermined order and combination for distorting said optical signal to a desired extent.

4. (Previously presented) The method according to Claim 2, comprising synchronized applying of an encryption key and a decryption key to said variable dispersion compensation module and said additional variable dispersion compensation module respectively, for suitably controlling the chromatic dispersion during the encrypting and the decrypting.

5. (Previously Presented) The method according to Claim 4, wherein said encryption key and decryption key are functions of time each reflecting a combination and order of operations affecting chromatic dispersion of the original signal and the encrypted signal, respectively.

6. (Previously Presented) An encryption device for encrypting an optical signal to be transmitted via an optical fiber communication link, the device being capable of causing controlled chromatic dispersion of said signal and comprising a variable dispersion compensation module inserted in said optical fiber communication link at its transmitting side.

7. (Previously Presented) The encryption device according to Claim 6, controlled by an encryption key.

8. (Previously Presented) The encryption device according to Claim 7, wherein the encryption key is a function of time.

9. (Previously Presented) The encryption device according to Claim 7, wherein the variable dispersion compensation module comprises a plurality of fiber sections having different dispersion characteristics and selectively connectable to the optical communication link.

10. (Currently amended) A decryption device for decrypting an optical signal encrypted by the encryption device according to Claim 6, the decryption device being capable of causing controlled compensation of chromatic dispersion introduced into said signal by the encryption device and comprising a variable dispersion compensation module inserted in said optical fiber communication link at its receiving ~~data~~side.

11. (Previously presented) A system for encryption of an original optical signal to be transmitted via an optical fiber communication link between a transmitting site and a receiving site, the system comprising

- a controllable encryption device at the transmitting site, capable of causing for controlled chromatic dispersion of said original signal and implemented as a variable dispersion compensation module inserted in said optical fiber communication link, and

- a suitably controllable decryption device at the receiving site, capable of compensating the chromatic dispersion caused at the transmitting site so as to obtain said original signal and implemented as an additional

variable dispersion compensation module inserted in said optical fiber communication link.

12. (Previously Presented) The system according to Claim 11, wherein said controllable encryption device is controlled by an encryption key.

13. (Previously Presented) The system according to Claim 11, wherein said controllable decryption device is controlled by a decryption key.

14. (Previously Presented) The system according to Claim 11, wherein both said encryption device and said decryption device are controllable in synchronism by an encryption key and a decryption key respectively.

15. (Previously Presented) The system according to Claim 14, wherein said keys are functions of time.

16. (Previously Presented) The system for encryption according to Claim 11, adapted to a multi-channel optical transmission system.

17. (Previously Presented) The method according to Claim 1, wherein said variable dispersion compensation module comprises a plurality of fiber sections having different dispersion characteristics, the method comprises selectively inserting said fiber sections into the optical communication link.

18. (Previously Presented) The decryption device according to Claim 9, wherein the variable dispersion

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compensation module comprises a plurality of fiber sections having different dispersion characteristics and selectively connectable to the optical communication link at its receiving side.

19. (Previously Presented) The system according to Claim 11, wherein at least one of said variable dispersion compensation modules comprises a plurality of fiber sections having different dispersion characteristics and selectively connectable to the optical communication link.